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FOREWORD

Advances in technology, particularly the emergence of the Internet, have made it possible to provide environmental information to the public in near real time. The Environmental Monitoring for Public Access and Community Tracking (EMPACT) program is a Presidential initiative to take advantage of the Internet and other communications tools to bring millions of people up-to-date environmental information they can use in their daily lives.

Communities selected for EMPACT projects are responsible for building their own time-relevant environmental monitoring and information delivery systems. These systems are to reside in, be managed by, and maintained by the individual pilot communities. EPA encourages local stakeholders to find community-based approaches that reflect local needs and resources.

Although the Internet is an effective tool for delivering environmental information, EPA recognizes that many individuals do not have access to the Internet, and that other approaches must be used to reach them. EMPACT projects are therefore expected to use other communications tools in addition to the Internet to provide time-relevant information to the public.

EMPACT's role is to provide coordination, guidance, and support to community projects.

This Handbook provides guidance to EMPACT projects on how to manage data and make it available to the public. The best management practices identified in this Handbook are derived from examples of successful time-relevant environmental monitoring projects already being conducted across the country. The Handbook does not address data collection or interpretation.

This Handbook has three main sections. Section 1 explains the purpose of the Handbook and identifies best management practices for EMPACT projects and requirements for EMPACT information management plans. Section 2 summarizes how EMPACT information should be documented to meet federal requirements. Section 3 provides guidance on effective use of the World Wide Web and suggests other communications tools besides the Internet that can be used to make information available to the public. Five appendices are included that provide the following: a glossary of terms; project case studies; a description of metadata creation tools; an index of Web sites URLs referred to in the Handbook, and a list of acronyms used in the Handbook.

The "EMPACT Information Management Checklist" following this Foreword summarizes key data management and dissemination activities that EMPACT managers need to consider as they develop their projects.

EMPACT PROGRAM OVERVIEW

"We are committed to the vision of providing timely, useful, and accurate environmental and public health information to all Americans. We are confident that, working together, we can make this vision a reality."

—Carol Browner U.S. EPA Administrator

What is EMPACT?

It stands for **E**nvironmental **M**onitoring for **P**ublic **A**ccess and **C**ommunity **T**racking. It is a new approach to working with communities to collect, manage, and present environmental information.

What will EMPACT do?

It aims to work with communities to make timely, accurate, and understandable environmental information available to millions of people in the largest metropolitan areas across the country (see list of EMPACT metropolitan areas on page vii) so that communities and individuals can make informed day- to-day decisions about their lives.

Why EMPACT?

What is the ozone level today? Last weekend the beach was closed. Have the conditions at the beach changed? What is in the soil in the park where our kids will play this afternoon? Tom just brought in a string of perch from the lake. Are there any local fish advisories?

Answers to these and dozens of other questions about the environment are important because they affect our daily lives. In the past, the answers to these questions were unavailable or often slow in coming. And when the information became available, chances are the answers were outdated and difficult to understand.

To address this problem, in 1996 President Clinton directed the U.S. Environmental Protection Agency (EPA) to create a new program—EMPACT—to bring to people up-to-date environmental information they could understand and use every day. Giant leaps in modern technology can now make this daily environmental information possible.

How Does EMPACT work?

To improve the delivery of accurate, timely, and useful environmental and public health information directly to communities and individuals, EPA will work with EMPACT communities to:

- Put the latest technology to work in keeping track of environmental conditions;
- Present in plain language the information the communities want to know; and
- Ensure that information is not only accurate but also useful.

EMPACT projects will use a variety of methods to provide environmental information. For example, depending on community preferences, these may include the Internet, compact disks, television, radio, newspapers, fliers, billboards, town-hall meetings, community organizations, person-to-person communication, and environmental “teller machines.”

EPA plans to reach its EMPACT goals by using two distinct approaches: EPA projects and pilot projects initiated by EMPACT metropolitan areas.

EPA Projects

EPA has started a number of projects that, working with communities, will provide environmental information to communities and individuals by means of the latest measurement, information management, and communications technologies. These initial EPA projects, for example, will:

- Develop improved air quality tracking systems for the Cleveland area.
- Provide immediate clean-water information at Los Angeles beaches.
- Provide daily ultraviolet index information to help children avoid harmful exposure.
- Keep better track of water quality in selected urban areas.
- Provide up-to-date air quality information in a clear, understandable format.
- Keep track of water quality in Long Island Sound.
- Reduce the risk of lead exposure to children in their own backyards in the Boston area.
- Provide information on contamination at hazardous-waste sites.
- Keep track of toxic air pollutants in the San Francisco area.
- Provide information on violations of clean-water laws.

EPA will work with communities and local stakeholders to ensure that environmental information is communicated in a way that meets the communities needs for up-to-date and reliable information.

Pilot projects initiated by EMPACT communities

EPA has earmarked \$3.5 million for locally sponsored pilot projects. These projects may deal with clean air, clean water, lead assessment, ocean pollution, overall ecosystem quality, or other important environmental conditions where Americans live, work, learn and play.

EPA will support local projects that show innovative and effective ways to keep track of and deliver on time important and useful environmental information. This involves three key activities:

1. Measuring using up-to-date or innovative technology to keep track of the latest information on environmental quality.
2. Processing and managing information interpreting environmental variables and characteristics by means of new or innovative technology.
3. Communicating delivering easily understood, useful, and timely information to the public.

Who is eligible for community pilot projects?

Local governments representing any of the EMPACT metropolitan areas are eligible to apply for pilot projects. Projects must be located in one or more of the EMPACT metropolitan areas.

Awards will range from \$250,000 to \$600,000 for the life of the project, which can last from 12 to 24 months.

The most competitive proposals for pilot projects will be developed in association with others. These could include state or local governments, community groups, universities, private corporations, and EPA. Whatever the combination, these groups would stay with a project from start to finish.

Partnerships

As mentioned above, EPA will coordinate EMPACT activities among federal, state, tribal, and local governments. Additionally, stakeholders, such as community health officials, businesses, industries, schools, and environmental organizations will be involved.

To help make EMPACT work, EPA will work closely with two other Federal agencies: the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Geological Survey (USGS). The resources and expertise of these two agencies will help EPA achieve nationwide

consistency in measuring environmental data, managing that data, and effectively delivering it to the public. Data obtained from both NOAA and USGS will also help EPA get a truer, more complete picture of our environment, coast to coast.

For more information on the EMPACT Program:

www.epa.gov/empact

Telephone: 202-564-6791

Facsimile: 202-565-1966

Mailing Address:

EMPACT Program

Office of Research and Development

U. S. EPA (8722R)

401 M Street,

S. W. Washington, DC 20460

EMPACT Metropolitan Areas

Albany- Schenectady- Troy, NY
Albuquerque, NM
Allentown- Bethlehem- Easton, PA
Anchorage, AK
Atlanta, GA
Austin- San Marcos, TX
Bakersfield, CA
Billings, MT
Birmingham, AL
Boise, ID
Boston, MA- NH
Bridgeport, CT
Buffalo- Niagara Falls, NY
Burlington, VT
Charleston- North Charleston, SC
Charleston, WV
Charlotte- Gastonia- Rock Hill, NC- SC
Cheyenne, WY
Chicago- Gary- Kenosha, IL- IN- WI
Cincinnati- Hamilton, OH- KT- IN
Cleveland- Akron, OH
Columbus, OH
Dallas- Fort Worth, TX
Dayton- Springfield, OH
Denver- Boulder- Greeley, CO
Detroit- Ann Arbor- Flint, MI
El Paso, TX
Fargo- Moorhead, ND- MN
Fresno, CA
Grand Rapids- Muskegon- Holland, MI
Greensboro- Winston Salem- High Point, NC
Greenville- Spartanburg- Anderson, SC
Harrisburg- Lebanon- Carlisle, PA
Hartford, CA
Honolulu, HI
Houston- Galveston- Brazoria, TX
Indianapolis, IN
Jackson, MS
Jacksonville, FL
Kansas City, MO- KS
Knoxville, TN
Las Vegas, NV
Little Rock- North Little Rock, AR
Los Angeles- Riverside- Orange County, CA
Louisville, KY- IN

Memphis, TN- AR- MS
Miami- Fort Lauderdale, FL
Milwaukee- Racine, WI
Minneapolis- St. Paul, MN
Nashville, TN
New Orleans, LA
New York- Northern New Jersey- Long Island, NY- NJ- CT- PA
Norfolk- Virginia Beach- Newport News, VA- NC
Oklahoma City, OH
Omaha, NE- IA
Orlando, FL
Philadelphia- Wilmington- Atlantic City, PA- NJ- DE- MD
Phoenix- Mesa, AZ
Pittsburgh, PA
Portland, ME
Portland- Salem, OR- WA
Providence- Fall River- Warwick, RI- MA
Raleigh- Durham- Chapel Hill, NC
Richmond- Petersburg, VA
Rochester, NY
Sacramento- Yolo, CA
Salt Lake City- Ogden, UT
San Antonio, TX
San Diego, CA
San Francisco- Oakland- San Jose, CA
San Juan, PR
Scranton- Wilkes- Barre- Hazleton, PA
Seattle- Tacoma- Bremerton, WA
Sioux Falls, SD
Springfield, MA
St. Louis- E. St. Louis, MO- IL
Stockton- Lodi, CA
Syracuse, NY
Tampa- St. Petersburg- Clearwater, FL
Toledo, OH
Tucson, AZ
Tulsa, OK
Washington- Baltimore, DC- MD- VA- WV
West Palm Beach- Boca Raton, FL
Wichita, KS
Youngstown- Warren, OH

EMPACT INFORMATION MANAGEMENT CHECKLIST

MANAGE THE DATA

- ☐ **Use a common data format (1.4.1)**
- ☐ **Provide data by open access system (1.4.2)**
 - Ensure compliance with industry standards
 - Ensure portability of applications across systems
 - Ensure scalability of applications performance and throughput
 - Ensure interoperability across systems
- ☐ **Document the project (1.4.3, 2.1)**
 - Document the project, i.e., metadata (2.1.1)
 - Document data set(e.g., compile data dictionary(2.1.2)
 - Document data elements through Environmental Data Registry (2.1.3)
 - Document systems (2.1.4)
- ☐ **Establish procedures for data back up and archiving (1.4.4)**
- ☐ **Ensure data integrity (1.4.5)**
 - Assess potential threats to systems
 - Protect systems against potential threats
- ☐ **Present data in an understandable format (1.4.6)**
 - Establish a context for Presenting Data to the Public
 - Format Data for Easy Interpretation
 - Be responsive to users of data
- ☐ **Ensure data quality (1.4.7)**
 - Establish an effective QA/QC plan.
 - Define what constitutes an error in the data.
 - Identify how errors are identified.
 - Establish procedures for addressing data errors.
- ☐ **Develop Information Management Plan (1.5)**

DISSEMINATE DATA TO THE PUBLIC

- ☐ **Build Web site**
 - Follow Web site guidelines (3.1.1)
 - Consider most effective ways to display data on Web site (3.1.2)
- ☐ **Select other communication tools for disseminating information (3.2)**